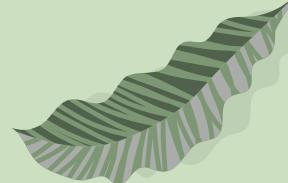
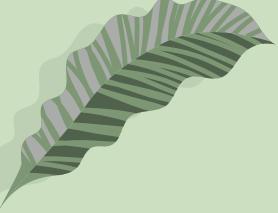


Building A New Reality







How might we make a **green**
transformation of buildings **sustainable**
and **affordable** to create enjoyable cities
to live in?

Gisela

60 years old
Landlord and building owner
Passionate for sustainability
Smart investor



Ludwig

20 years old
Tenant in Gisela's building
Architecture student
Always up-to-date with tech



greenewal retrofits existing buildings with
standardized **plant modules** to achieve
optimal **vegetation coverage**



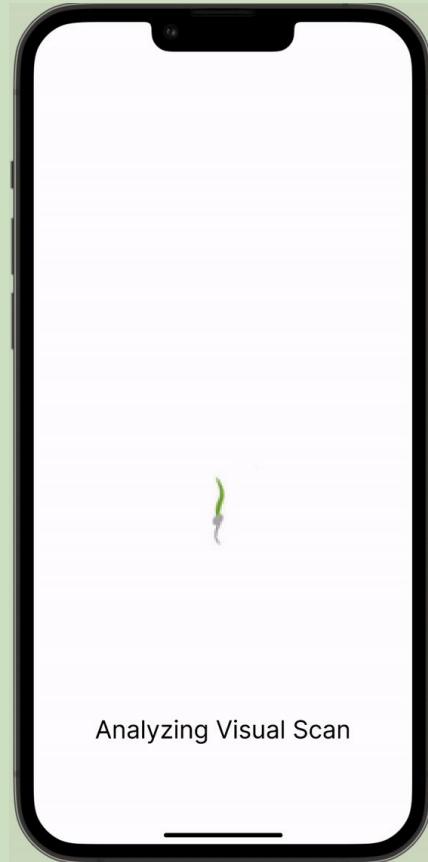
Create Building Scan

- **Scan** building using your **smartphone**
- **GPS data** and **celestial directions** are gathered
- individualized **2D representation** is generated



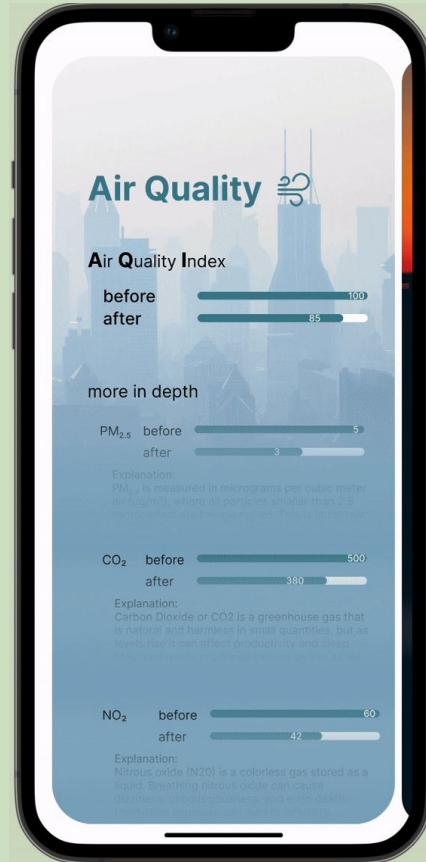
Calculate Coverage

- Aggregation of data to **simulate optimal distribution**
- **2D preview** of **retrofitted** building
- **Amount, location** and **type** of panels



Receive Insights

- Detailed **before-after** comparison
- **Temperature, noise** and **air quality**
- **Contact us** option for installation





Standardized modules, mounted on a **scaffolding system** attached to the facade

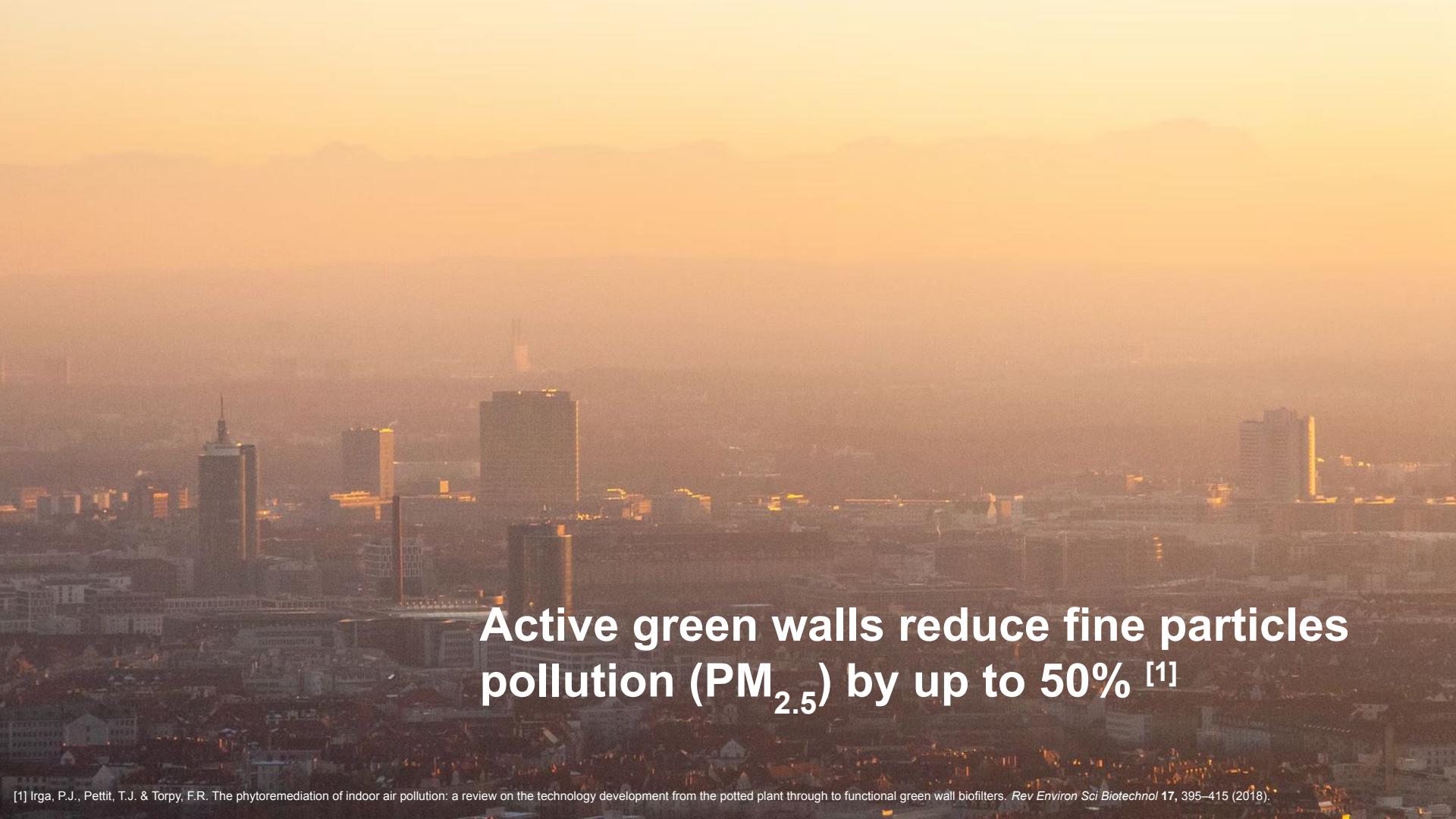


Different modules for different **sun exposures** and **climates**

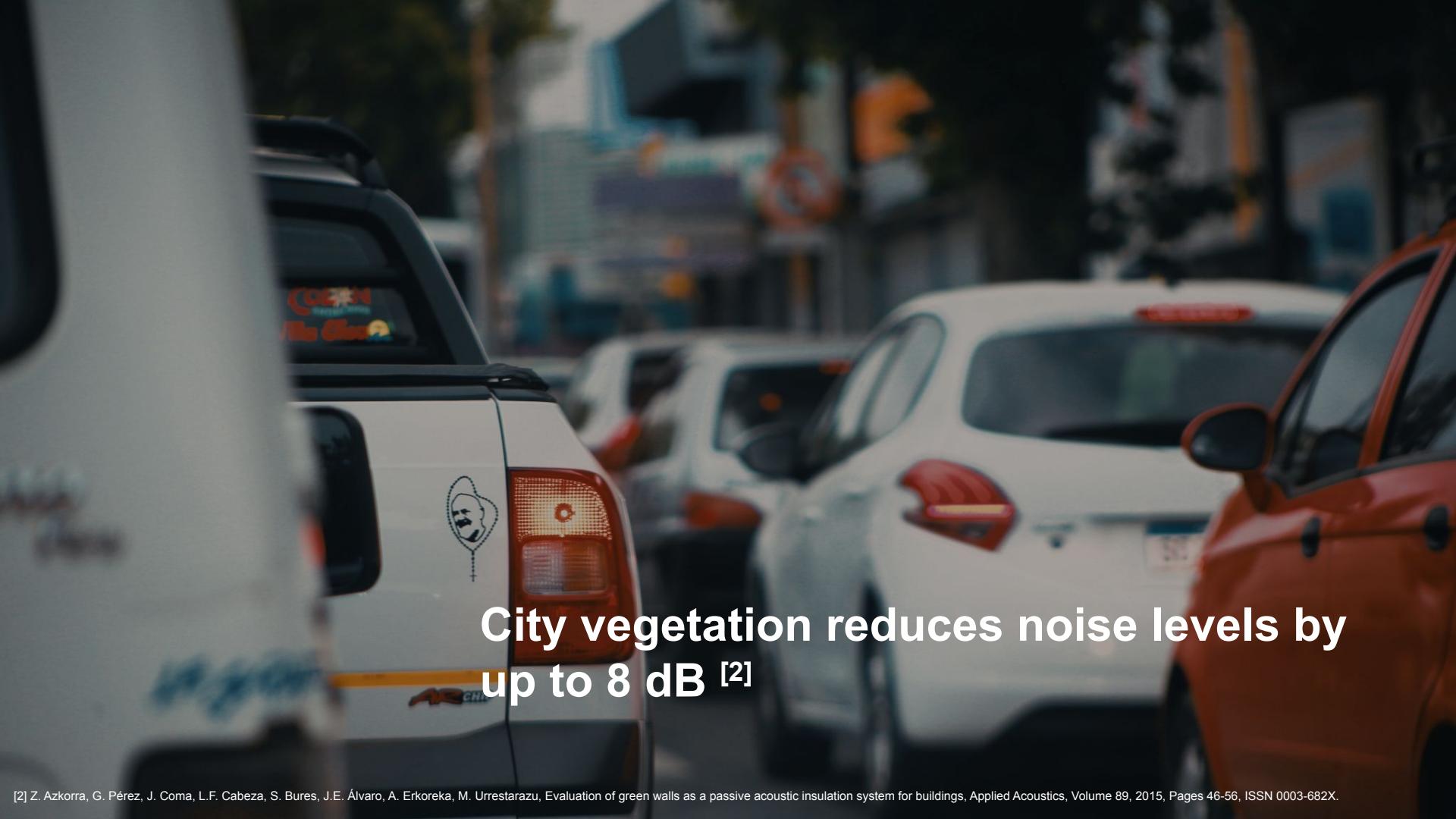


Central nutrition irrigation system,
minimal **upkeep** required

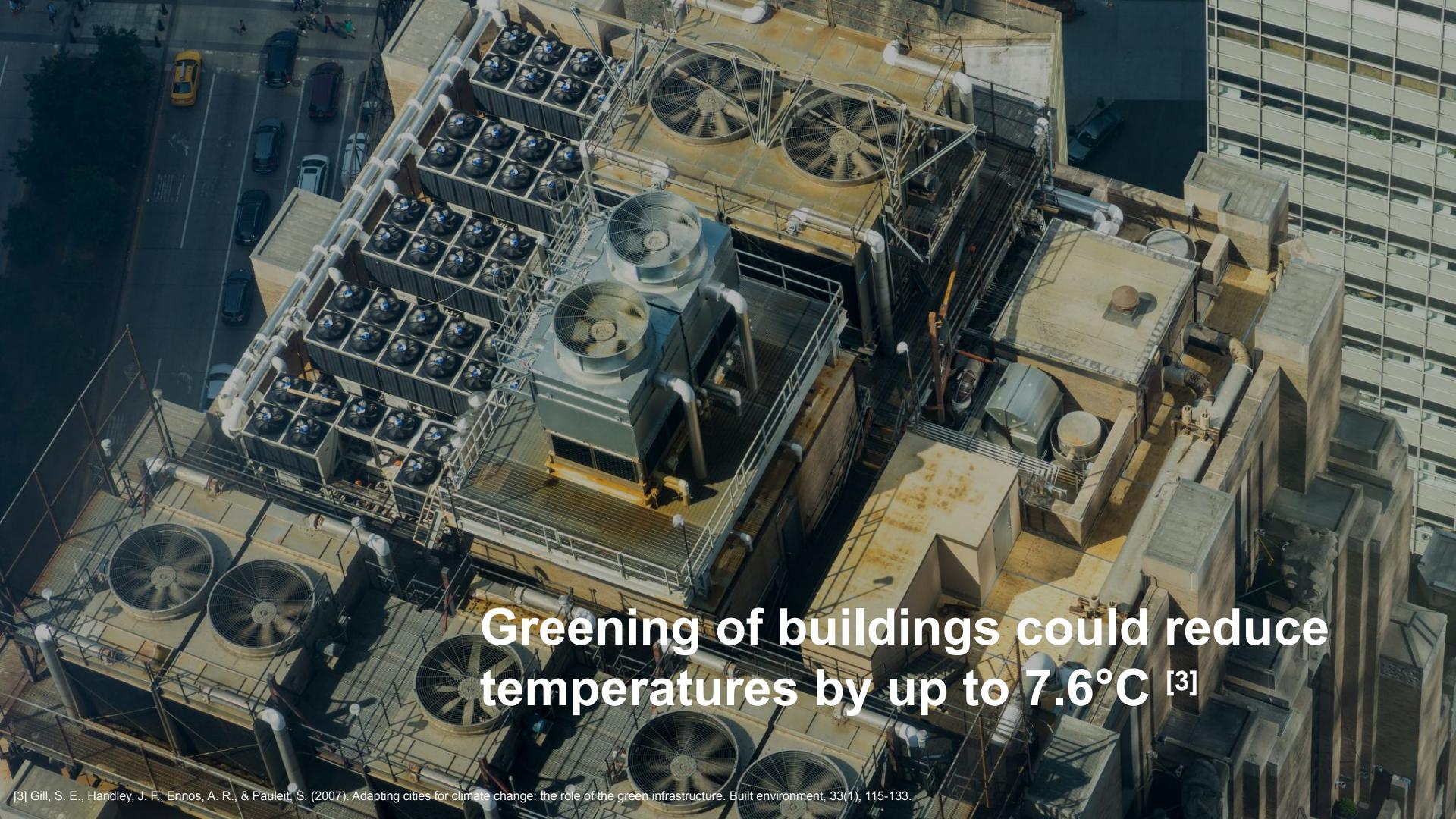




**Active green walls reduce fine particles
pollution ($\text{PM}_{2.5}$) by up to 50% [1]**



**City vegetation reduces noise levels by
up to 8 dB [2]**

An aerial photograph of a large building's rooftop mechanical system. The image shows several large cooling towers with blue fans, a central fan unit, and various pipes and ductwork. The building is situated in an urban environment with other buildings and a street visible in the background.

Greening of buildings could reduce temperatures by up to 7.6°C [3]

[3] Gill, S. E., Handley, J. F., Ennos, A. R., & Pauleit, S. (2007). Adapting cities for climate change: the role of the green infrastructure. *Built environment*, 33(1), 115-133.

Thanks for your
attention!

Questions?





BACKUP SLIDES

Other benefits

- A green facade augments the **humidity level** by between **5** and **14%** in the summer

(Gabriel Pérez, Lídia Rincón, Anna Vila, Josep M. González, Luisa F. Cabeza, Green vertical systems for buildings as passive systems for energy savings, Applied Energy, Volume 88, Issue 12, 2011, Pages 4854-4859, ISSN 0306-2619, <https://doi.org/10.1016/j.apenergy>)

- Green walls increase the **property value** by **2%–5%**

(Maria Manso, Inês Teotónio, Cristina Matos Silva, Carlos Oliveira Cruz, Green roof and green wall benefits and costs: A review of the quantitative evidence, Renewable and Sustainable Energy Reviews, Volume 135, 2021, 110111, ISSN 1364-0321, <https://doi.org/10.1016/j.rser.2020.110111>)

- Shading with plants can lead to seasonal cooling **energy savings of up to 30%**

(Gabriel Pérez, Lídia Rincón, Anna Vila, Josep M. González, Luisa F. Cabeza, Green vertical systems for buildings as passive systems for energy savings, Applied Energy, Volume 88, Issue 12, 2011, Pages 4854-4859, ISSN 0306-2619)



Business Case

- **Installation:** requires professionals to come and mount the scaffolding and the modules.
Estimated at **190€/m²**
- **Maintenance:** yearly upkeep and small repairs
Estimated at **10€/m²/year** and improvable
- **Disposal:** also done by professionals.
Estimated at **100€/m²**
- Estimated lifetime is **40 years.**
- **Energy savings** for a full facade of 20 m²
Estimated at **11€/m²/year**



Modules - Details

- Irrigation is minimal through **storage of rainwater** and **grey water** usage
- All relevant nutrients included in a **nutritional fluid**
 - Can be subscribed-to for convenient usage
- Professional maintenance is needed only **yearly**
- Estimated lifetime of **40 years**

