Naturally.
Innovative.

LivingPANELS

#NatureBASE

We're moving **horizons!**

Our approach

First affordable fully integrated green facade system as a contribution to climate protection

A worldwide loss of green space can be observed due to construction and sealing measures. In view of changing climatic conditions, increasing air pollution and the increasing development of heat islands, green facade systems can be an urban adaptation strategy to these challenges.

The advanced design of the LivingPANELS is characterized by a number of new functional and constructive solutions. With the expertise of well-known (major) partners, the successful development of this unique living wall system could take place in the course of a three-year European research project.

RESEARCH AND DEVELOPMENT PARTNER:

BOKU

UNIVERSITÄT MAINZ

UNIVERSITÄT BONN

SLAVONIA
Austrian quality since 1893.

MAGU®
BAUSYSTEME

OPTIGRÜN®
DIE DACHBEGRÜNER

GREEN 4 CITIES

tatwort
nachhaltige projekte

Research and development

Our results speak for themselves!

Test sites

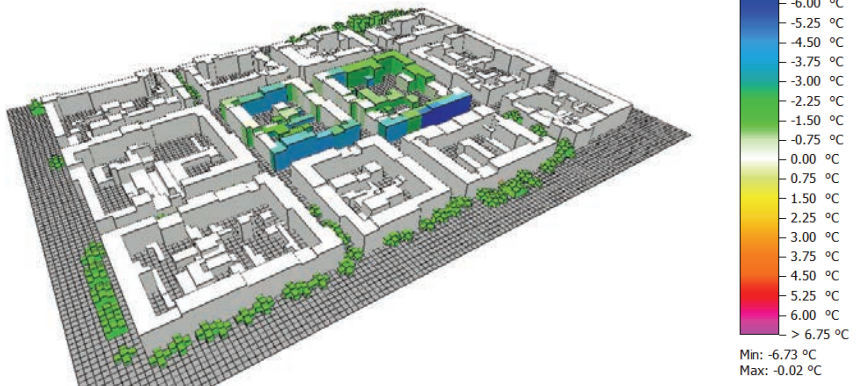
Vienna / Groß-Enzersdorf / Bonn / Plovdiv / Hüfingen

- Sensor data for microclimate and building physics
- Vegetation monitoring / plant selection
- Development of automatic irrigation and fertilization
- Increased insulation properties through specific selection of components
- Further technical development of the system

Simulations

Microscale simulation model

- Microclimatic performance through ENVI-met simulation model
- Energy balance model of the cooling effects in three-dimensional space
- Heating and cooling processes of different surfaces
- • Calculation of the thermal performance during heat waves



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Sensor Technology

Irrigation and maintenance

- Demand-oriented irrigation through sensor control
- Minimal water consumption through optimal water distribution and water storage
- Use of gray water possible
- Remote maintenance for consumption balancing and error detection including real-time notification

Plant development

Novel vegetation carrier

- Excellent plant development thanks to optimal water and nutrient supply
- Scientifically proven selection of plants, matched to location and exposure
- High biodiversity / habitat of protected species
- Winter hardy and permanent greening through innovative substrate components

Why our System

Benefits of the LivingPANELS

Integrated assembly and disassembly

- Simple assembly and disassembly “Plug & Play”
- Complete rear-ventilated facade system including insulation
- New and existing buildings
- Light weight <50kg / m^2
- Tested statically and physically
- Green with completion by pre-cultivation

High ROI

- Increase in the value of the property with low construction costs
- Low maintenance costs with high added value in terms of building physics
- Long lifetime

Recycling and dismantling

- Conservation of resources, especially through reuse of components
- Conservation of resources through material selection
- Use of recycled components

> “Complexes Challenges need Research and Development. Our system is the result of a three year European Research project.”

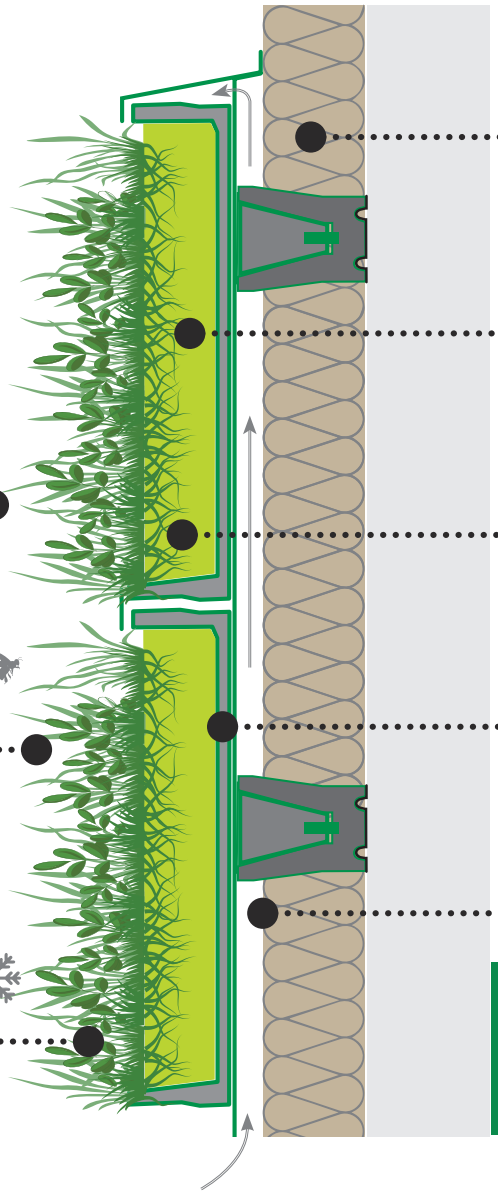
Highlights:

Scientifically proven Plant selection
matched to location and exposure

Green with completion
through pre-cultivation

High biodiversity
Habitat of protected species / bee pasture

Hardy and permanent greening
through innovative substrate components



Complete assembly
including increased insulation properties

Novel vegetation carrier
with optimal water and nutrient supply

Need-based irrigation
through sensor control, minimal water consumption

Easy construction
and dismantling - “plug and play” system

Building physics checked
Separation of water supply and insulation

remote maintenance
for consumption accounting and error detection

Green with completion .
"Plug & Play"

Naturally. Innovative

Unique vegetation carrier and fully automatic irrigation system

Optimal water distribution and water storage

Increased insulation properties through specific selection of components

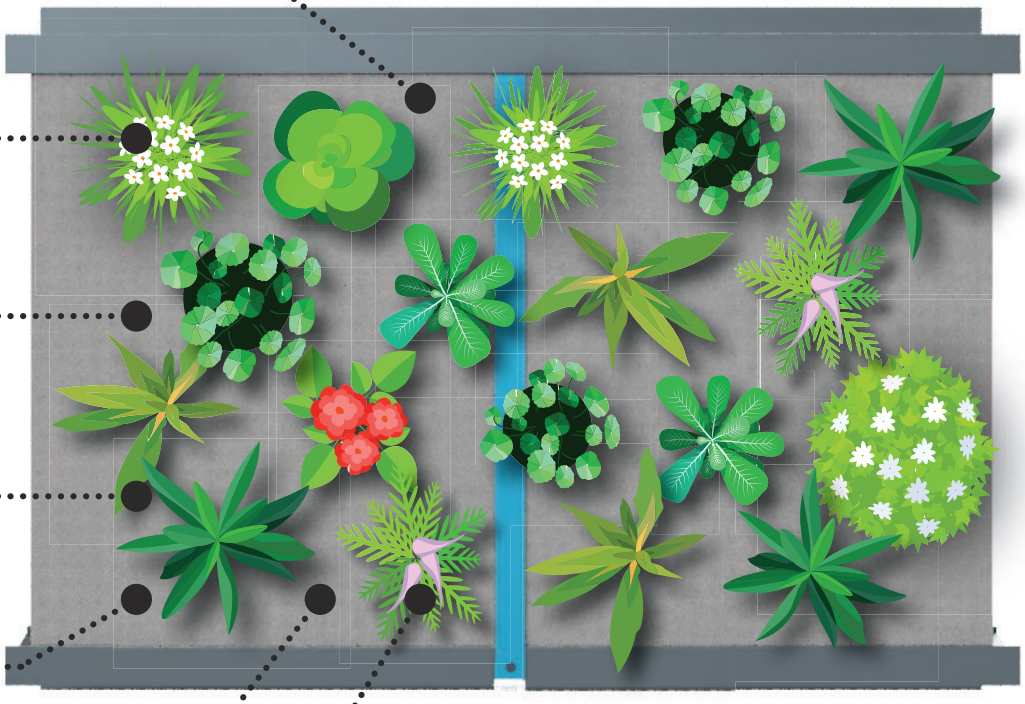
Increased sound insulation around the building; Noise reduction in the interior

Increased thermal comfort indoors and outdoors

Long service life through the use of durable components

High UV resistance, fire resistance and wind load tested

Building physics checked



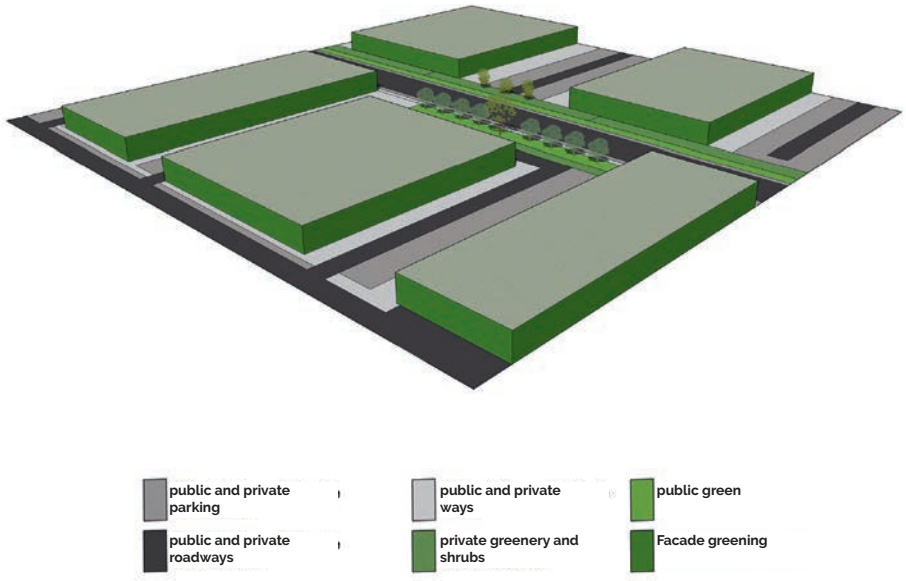
(design protection pending)

Module

GREENPASS® Technologie

The LivingPANELS not only look fantastic, they also work that way!

With the help of the innovative GREENPASS® technology, based on the leading holistic 3D simulation software ENVImet the climatic and building physics effects were Investigated for commercial buildings.
For this purpose, the exact same analyzes and simulations were carried out for buildings with and without LivingPANELS on a hot day and the results compared.:

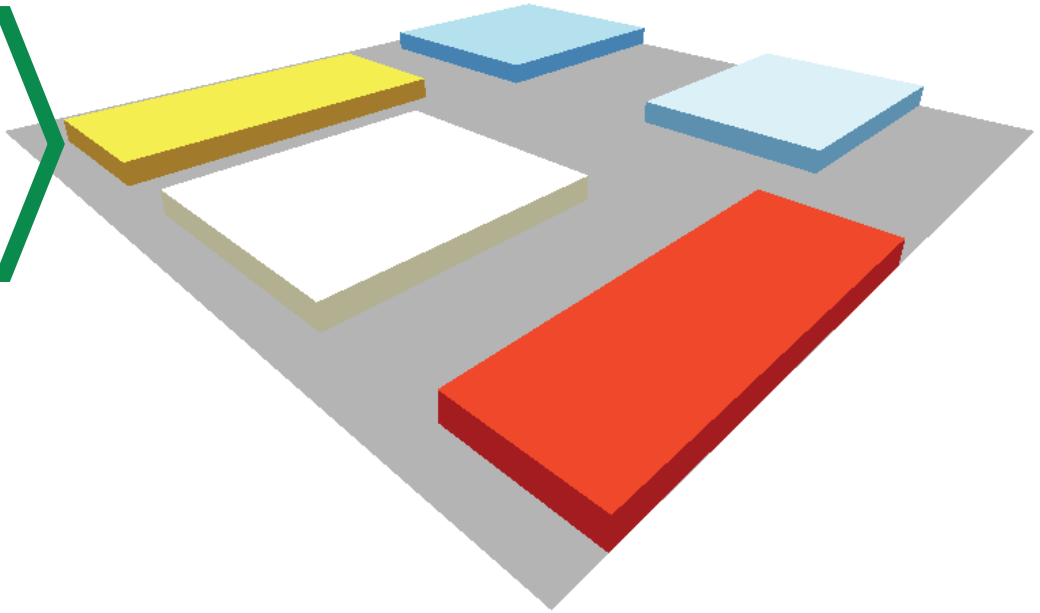


A commercial building with LivingPANELS ...

- stays cooler inside by up to approx. 8 ˚ C
- heats the urban climate with up to 218 W / m2 less energy
- stays cooler outside by over 30 ˚ C
- reduces the perceived temperature for people on facades by up to
- 3 ˚ C
- reduces the perceived temperature in the entire area by approx. 1.5 ˚ C
- reduces the temperature of the outflowing air by 10%
- improves thermal comfort by over 25% or 9 points!

Temperature perceived difference card without and with LivingPANELS 3 p.m.

Indoor temperature difference card without and with LivingPANELS 3 p.m. & 10 p.m.



Building: Temperature of building (inside)

- below 6.4 C°
- 6.4 to 6.6 C°
- 6.6 to 6.8 C°
- 6.8 to 7.0 C°
- 7.0 to 7.2 C°
- 7.2 to 7.4 C°
- 7.4 to 7.6 C°
- above 7.6 C°

Min: 6.2 C°
Max: 7.8 C°

Building: Temperature of building (inside)

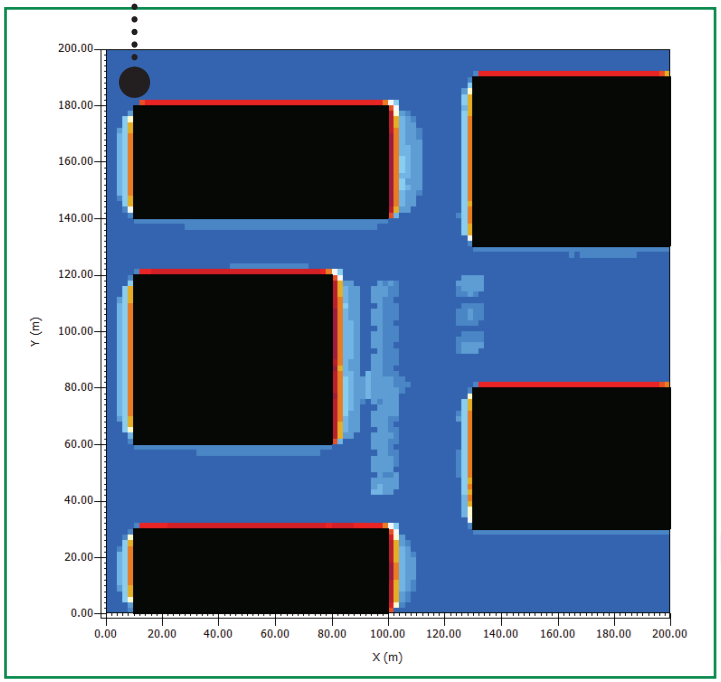
- below 3.6 C°
- 3.6 to 3.7 C°
- 3.7 to 3.9 C°
- 3.9 to 4.0 C°
- 4.0 to 4.1 C°
- 4.1 to 4.3 C°
- 4.3 to 4.4 C°
- above 4.4 C°

Min: 3.5 C°
Max: 4.5 C°

absolute difference PET

- below 0.3 C
- 0.3 to 0.5 C
- 0.5 to 0.7 C
- 0.7 to 0.9 C
- 0.9 to 1.2 C
- 1.2 to 1.4 C
- 1.4 to 1.6 C
- 1.6 to 1.8 C
- 1.8 to 2.0 C
- 2.0 to 2.3 C
- 2.3 to 2.5 C
- 2.5 to 2.7 C
- 2.7 to 2.9 C
- above 2.9 C

Min: 0.0 C
Max: 3.2 C



SIMULATION

Ready to go?

We bring our development to you!

Optics & design

Eindrucksvolles Naturerlebnis

- Natural appearance
- Large creative freedom through a variety of suitable plants
- Visible system components can be adjusted in color
- Adaptable design to existing structures
- Attractive winter appearance
- Impressive nature experience

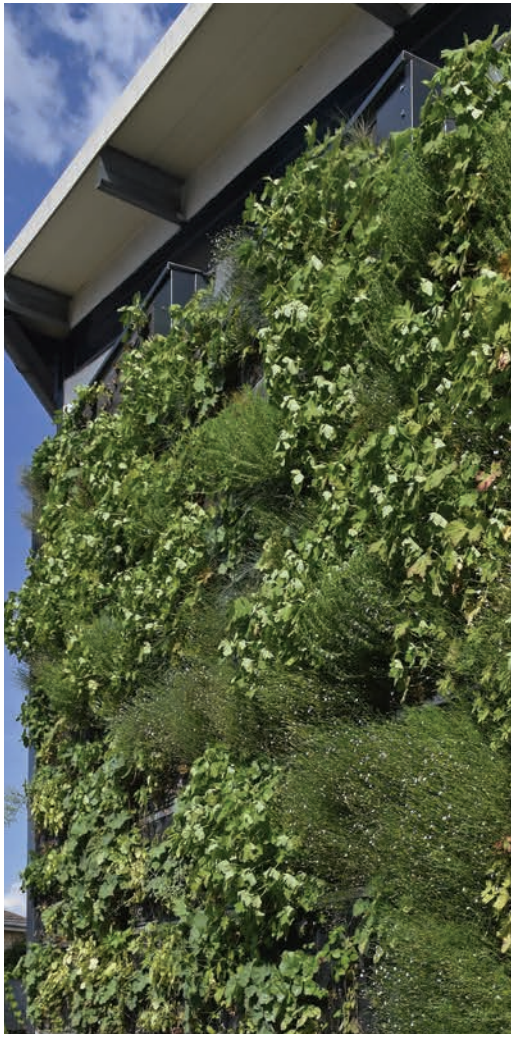
Extraordinary

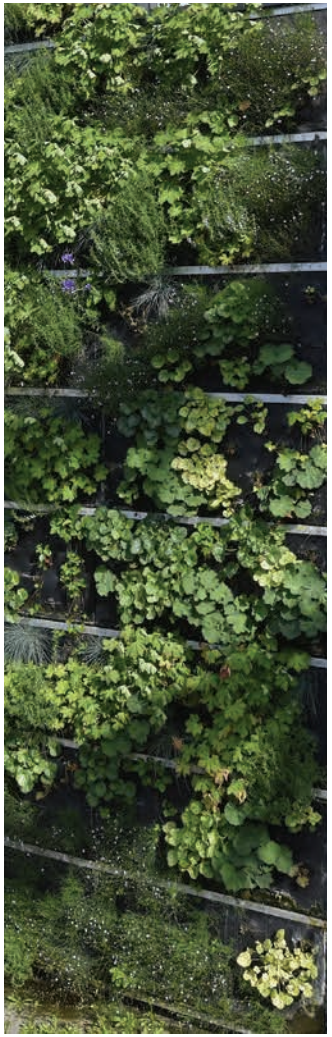
selection of plant species & permanent greening.

Real innovations **work everywhere** and in **every season.**

LivingPANELS in DE

It's time to shift horizons and green the world!





(Picture: Sigwart)

LivingPANELS in AT

Top results even with reduced maintenance!

LivingPANELS

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